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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,052	04/18/2001	Mark R. Tremblay	IMM121C	9877

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EXAMINER

LIANG, REGINA

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 11/29/2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,052

Applicant(s)

Tremblay et al

Examiner

Regina Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/18/2001, 6/25/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-49 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 25-49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,088,017. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 25-49 of this application are broader version of patented claims.

The following is an example for comparing claim 25 of this application and claim 1 of U.S. Patent No. 6,088,017.

Claim 25 of this application	Claim 1 of U.S. Patent No. 6,088,017
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<p>a computer peripheral connected to a host computer for enabling a user to provide input to a graphical simulation running on said host computer and for providing vibration feedback to said user, said vibration feedback corresponding with displayed interactions within said graphical simulation, said computer peripheral comprising: an analog sensor responsive to finger motion of a user during operation of said computer peripheral;</p>	<p>an apparatus for providing a tactile sensation to a sensing body part in relation to a variable state signal, said apparatus comprising at least one vibrotactile unit, wherein each unit comprises: means for generating said variable state signal;</p>
<p>an inertial mass actuator that selectively generates an inertial vibration that a user can feel when operating said computer peripheral;</p>	<p>a mass-moving actuator comprising a shaft and an eccentric mass mounted on said shaft, said mass moving actuator rotating said shaft;</p>
	<p>fastening means for holding said mass-moving actuator in relation to said sensing body part for transmitting vibrations to said sensing body part;</p>

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<p>a signal processor separate from said host computer, said signal processor connected to said analog sensor and said inertial mass actuator, said signal processor operative to communicate with said host computer, wherein said signal processor sends information to said host computer including sensor data from said analog sensor, and wherein said signal processor controls said inertial mass actuator to produce said inertial vibration by producing an activating signal in response to received data from said host computer.</p>	<p>a signal processor for receiving and interpreting said state signal to produce an activating signal and transmitting said activating signal to said mass-moving actuator for activating said mass-moving actuator to produce a variable tactile sensation in relation to said variable state signal as a result of varying the frequency and amplitude of said vibration.</p>
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3. Claims 25-49 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-60 of U.S. Patent No. 6,275,213. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 25-49 of this application are broader version of patented claims.

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The following is an example for comparing claim 25 of this application and claim 27 of U.S. Patent No. 6,275,213.

Claim 25 of this application	Claim 27 of U.S. Patent No. 6,275,213
a computer peripheral connected to a host computer for enabling a user to provide input to a graphical simulation running on said host computer and for providing vibration feedback to said user, said vibration feedback corresponding with displayed interactions within said graphical simulation, said computer peripheral comprising:	a method for creating complex tactile sensations through a computer interface device, said sensations generated by driving an inertial mass to produce a force upon a user, said method comprising:
an analog sensor responsive to finger motion of a user during operation of said computer peripheral;	providing a sensor in said computer interface device, said sensor tracking the motion of said computer interface device or an element thereof, wherein data from said sensor is used to update a graphical computer simulation

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<p>++an inertial mass actuator that selectively generates an inertial vibration that a user can feel when operating said computer peripheral;</p>	<p>providing an inertial mass within said computer interface device, said inertial mass movable under software control by an actuator, said actuator capable of accelerating and decelerating said mass to create an impulse or vibration to be felt by a user;</p>
<p>a signal processor separate from said host computer, said signal processor connected to said analog sensor and said inertial mass actuator, said signal processor operative to communicate with said host computer, wherein said signal processor sends information to said host computer including sensor data from said analog sensor, and wherein said signal processor controls said inertial mass actuator to produce said inertial vibration by producing an activating signal in response to received data from said host computer.</p>	<p>Receiving a signal from a host computer, said signal used to correlate events within a graphical computer simulation with a desired tactile sensation by causing the acceleration or deceleration of said inertial mass, the desired tactile sensation to be perceived by said user, and based on the signal, modulating power to said actuator to selectively accelerate and decelerate said inertial mass so as to produce said desired tactile sensation having a magnitude and frequency that are independently variable.</p>

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Claim Rejections - 35 USC § 112

4. Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 44 is indefinite since it depends from itself.

5. Examiner presumes claim 44 depends from claim 41 for the purpose of applying art.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 25-29, 31-37, 40-44, 48, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (US. PAT. NO. 5,184,319) in view of McIntosh (US. PAT. NO. 5,103,404).

As to claims 25, 26, 41, 42, 49 Kramer discloses a computer peripheral connected to a host computer for enabling a user to provide input to a graphical simulation running on the host computer and for providing vibration feedback to the user, the vibration feedback corresponding with

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displayed interactions within the graphical simulation (col. 1, lines 12-447). Figs. 9, 10 of Kramer disclose the computer peripheral comprising an analog sensor (917) responsive to finger motion of a user during operation of said computer peripheral, an inertial mass actuator that selectively generates an inertial vibration that a user can feel when operating the computer peripheral. Kramer differs from the claims in not including a signal processor separate from the host computer. However, Figs. 1, 24 of McIntosh teaches a signal processor (25) separate from the host computer (26), the signal processor connected to the position sensor and actuator, the signal processor operative to the communicate with the host computer, and the signal processor sends information to the host computer and the signal processor controls the actuator to produce the vibration by producing an activating signal in response to received data from the host computer (col. 7, line 55 to col. 8, line 45). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kramer to have a separated signal processor as taught by McIntosh so as to provide sensory input to the operator of a manipulator which gives in real time, an accurate and reliable, as well as variable, degree of tactile feedback to the operator to enhance the preciseness of his control over the manipulator.

As to claims 27, 32-34, 43, Kramer teaches the displayed interaction is the collision of two virtual objects within the graphical simulation (col. 1, lines 12-34).

As to claims 28, 29, 40, 44, Kramer teaches two inertial mass actuators (Fig. 4).

As to claim 31, see col. 7, lines 22-26 of McIntosh.

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As to claim 35, Figs. 8a, 8b, 8f, 8g of Kramer teaches the mass actuator is mounted on a compliant spring.

As to claims 36, 37, Kramer teaches the sensor is a potentiometer or optical sensor (col. 14, lines 18-19).

As to claim 48, McIntosh teaches the actuators generate vibration by imparting centrifugal forces (Fig. 2).

8. Claims 30, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer and McIntosh, and further in view of McRae et al (US. PAT. NO. 4,731,603 hereinafter McRae).

As to claims 30, 45, Kramer as modified by McIntosh does not disclose the mass actuator includes a rotating eccentric mass. However, McRae teaches a tactile feedback system comprising a rotating eccentric mass actuator. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mass actuator of Kramer as modified by McIntosh to include a rotating eccentric mass as taught by McRae to provide sufficient tactile input to a user in order to rapidly gain that user's attention.

9. Claims 38, 39, 46, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer and McIntosh, and further in view of Renzi (US. PAT. NO. 5,583,478).

Kramer as modified by McIntosh does not disclose the vibration is controlled such that the frequency of the vibration is varied over time. However, Renzi teaches the vibration is controlled

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such that the frequency of the vibration is changed (col. 6, lines 11-27). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kramer as modified by McIntosh to have the frequency of the vibration is changed as taught by Renzi so as to increase the ability of the system to simulate the sense of touch.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (703) 305-4719. The examiner can normally be reached on Monday-Friday from 9AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:


Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.


REGINA LIANG
PRIMARY EXAMINER
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RL